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REVIEW

Drug promotion practices: A review

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Over the years, the pharmaceutical industry has been at the forefront of research and innovation in drug discovery and development. The process of drug discovery extending from preclinical studies to multicentric clinical trials and postmarketing phase is a costly affair running into billions of dollars. On the flip side, not all investigational molecules clear the trial phases and get approved, which puts pressure on the manufacturers to maximize the profit from approved drugs. It is in this key area that the practice of drug promotion plays its role. The World Health Organization defines drug promotion as "all informational and persuasive activities by manufacturers and distributors, the effect of which is to influence the prescription, supply, purchase or use of medicinal drugs". With its humble intent of creating awareness among healthcare professionals and updating their knowledge on recent advances in treatment options, drug promotion has been an important tool, but gradually it has evolved to embrace aggressive marketing strategies and sometimes unethical business and scientific practices where the need for profit-making eclipses commitment to patient care and scientific exploration. In this review, we discuss the evolution of drug promotion practices, the various types, its merits and demerits, the influence of drug promotion on physician prescribing behaviour, the role of regulatory bodies, unethical promotional practices and finally summarize with future directions.

Introduction

The task of drug development is a herculean one that involves tremendous amounts of money, manpower and scientific acumen. Limited by the slow process of governmental bureaucracy and public funds globally, this task largely falls and continues to remain under the purview of the pharmaceutical industry. Research and discovery of potential therapeutic molecules is always a huge gamble as an extremely small number of molecules at the initial stages of drug discovery actually proceed to become approved drugs in the market. Where science plays a major role in the stages of drug discovery and development, the later stage of drug promotion is an amalgam of science and marketing strategy. At its core, drug promotion is unavoidable as the molecules under research and the latest updates from the *bench* has to be made known at the *bedside*.

The dilemma comes when the pharmaceutical industry places profit over science to mitigate the losses in the research and drug development process by resorting to dubious and potentially unscrupulous promotional methods. This trend exists because drug promotion has been identified to influence physician prescribing behaviour and can tip the scales in favour of the pharmaceutical industry even when it is not backed by good science. From its humble beginnings of tasking medical representatives with drug promotion, this field has witnessed unprecedented changes to include drug advertisements in print and electronic media, pharmaceutical physicians to engage with healthcare practitioners at a broader scientific level, designated key opinion leaders (KOLs) or thought leaders to give a strong backing for the claims by the drug manufacturer and to the grey areas of medical ghost writing, data manipulation, industry lobbying and other industry practices verging on fraud.

The need for drug promotion

The pharmaceutical industry, although it involves much resource expenditure on research and development, still works

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on the profit-making model of business. Due to the overwhelming requirements of technology, manpower and state-of-art facilities for the process of drug discovery and development, the monetary needs for this stage of product (drug) development usually runs into billions of dollars. Except for certain drugs classified as *orphan drugs*, the manufacturers do not receive any external grant from government/public funding agencies. This puts pressure on the industry to generate revenue from its own product sales. This is the justification of the pharmaceutical industry for placing importance for the marketing division over the research and development functions (Figure 1) [1]. Lack of drug promotion translates to loss of sales and less profits which leads to reduction in funds for research and development (R&D) and ultimately puts the brake on drug discovery and development.

Over the years, multiple pharmaceutical firms have increased their expenditure on marketing and it has to come to dwarf the spending on R&D. In 2016, the global pharmaceutical industry was valued at 816 billion US dollars with the top 15 pharmaceutical companies spending 20.5% of their revenue on R&D [2]. Although the figure seems small, the highest spending on R&D proportional to the revenue is from these top companies, which reflects the strategy that increased spending on innovation and R&D ensures adequate returns on investment rather than aggressive marketing practices for existing drugs. Although no pharmaceutical company has been spared, this technique of *strong marketing* and *weak innovation* is more prevalent among the smaller firms; targeting at quick revenue recovery rather than innovation-based strategy to future-proof their respective companies.

The impact of drug promotion on physician prescribing behaviour

There is compelling evidence to state that drug promotion influences physician prescription behaviour by virtue of the numerous studies carried out over many years. With the gradual inclusion of promotional strategies other than the classical medical representatives, the influence of pharmaceutical promotion has steadily grown and often to an extent of ethical concern.

It is essential to gather information regarding the attitude and behaviour of physicians towards drug promotion as it provides insight into where relevant interventions are needed. Several studies have shown that the attitude of people towards promotion do not necessarily match their behaviour. For example, a physician's view of the credibility of source of information may not necessarily match with their behaviour of relying on the very same information during prescribing. Sales representatives and other commercial sources of drug information were not considered as credible sources of information by physicians but still they were the most frequently used first source of drug information [3].

In a systematic review of 58 studies that dealt with the issue of drug promotion and its influence in prescribing behaviour; the review concluded that exposure to promotional information from the industry was associated with higher prescribing frequency, prescribing costs or lower prescribing quality or no association at all. As there was no significant benefit demonstrated from promotional activities, the recommendation was to limit promotion as it could potentially reduce the time for physician–patient interaction and indirectly lead to costlier drugs for recovering the expenditure of drug promotion [4].

The drug promotion armamentarium

The pharmaceutical industry employs various methods for promoting its drugs as different promotion methods cater to different needs and different target population. Broadly covered by the marketing division of a typical pharmaceutical company, the task of drug promotion is a well-funded and crucial if not the most important objective for the company

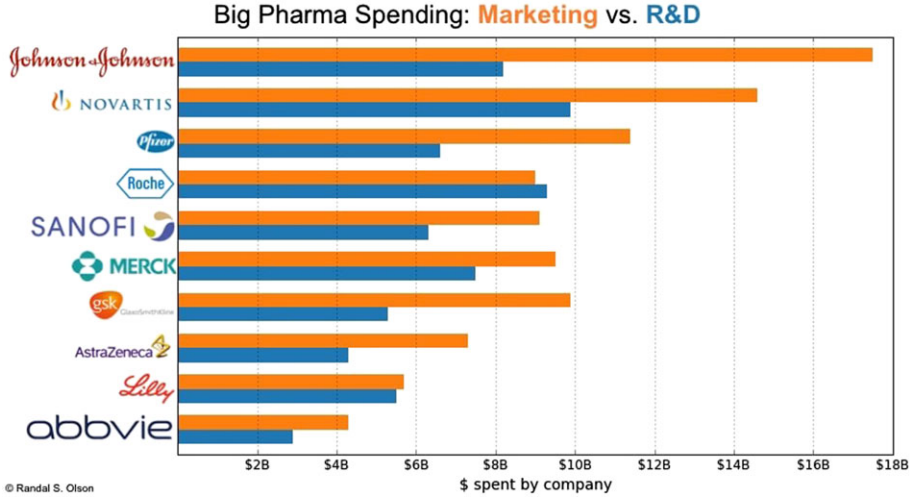


Figure 1
Break-down of the proportional revenue expenditure on research and development *vs.* marketing of top 10 pharmaceutical companies (2013) [1]

once a drug is approved. To understand this key component of the pharmaceutical industry, it is imperative we look at each of the promotional techniques in detail:

Direct marketing – medical representatives/detailing

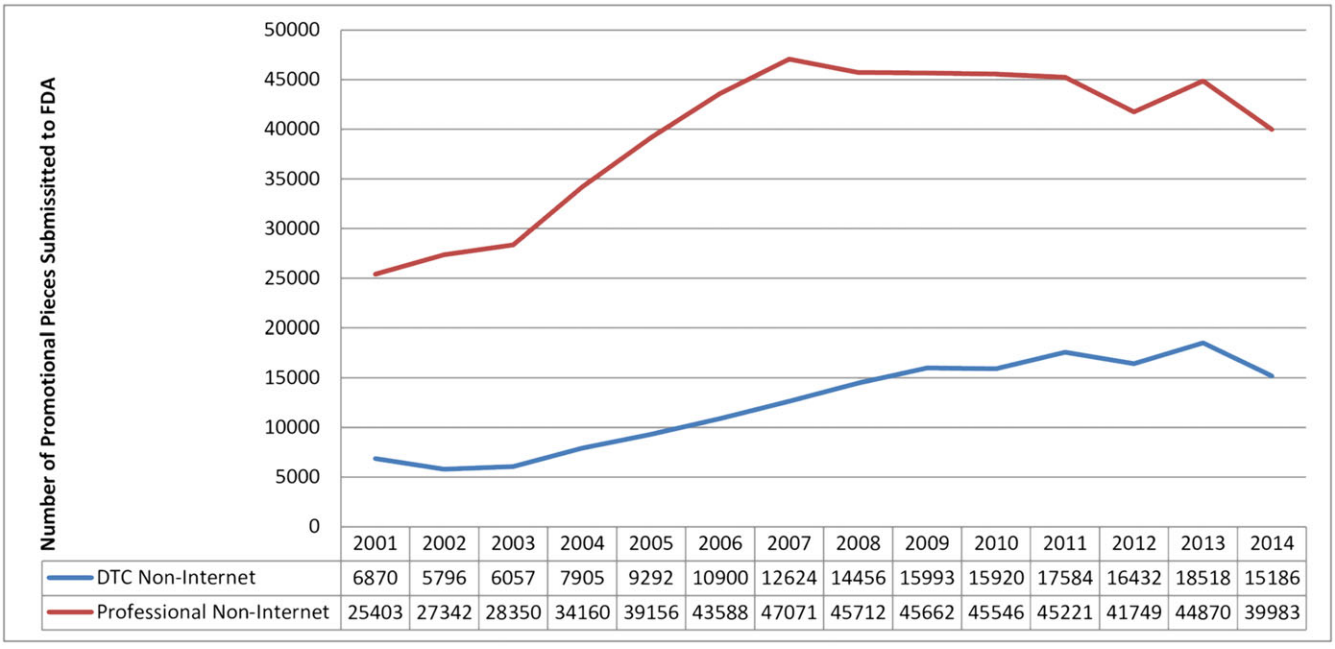
To a lay person, the concept of drug promotion is likely to be limited to the image of the company representative patiently waiting in the out-patient department to meet the clinician, and rightly so. Direct marketing of drugs by employing representatives remains the mainstay of drug promotion across the industry and the figures speak for themselves. In 2015, the US pharmaceutical industry spent an estimated 20.4 billion US dollars for detailing/direct marketing. The very fact that the industry pumps this magnitude of money into direct marketing underlines its importance and prevalence as a promotional method. At the very basic level, the representative is placed with the responsibility of updating the clinician's knowledge about the latest drug launches from the company by using promotional literature i.e. brochures, calendars, pamphlets and flip-charts. The task of the medical representative (MR), being largely commercially-oriented, there is very little or no possibility of exchange of scientific information. The fact that direct marketing is effective is strengthened by the various studies that conclude that increased physician–MR interaction leads to increased prescriptions for the drug and more drugs per prescription. In a metasynthesis of 15 studies conducted in various nations, the physicians considered the medical representatives to be efficient and convenient information resources and they were also willing to meet them and accept their gifts. Most physicians believed that their prescription would not be influenced by the MRs [5].

Another responsibility of the MR is the process of gifting free samples of drugs to the clinicians. These drug samples serve the key purpose of acting as *reminders* to the clinicians for generating further prescriptions of the company's product. Although clinicians declare that they are rarely influenced by MR interaction or by accepting gifts from them; there is significant difference in physician's attitude and their behaviour as demonstrated by the fact that they prescribe the free drug samples more frequently out of feeling of reciprocity.

Citing this area of potential unethical promotional methods, in 1988, the World Health Assembly adopted the World Health Organization (WHO) Ethical Criteria for Medicinal Drug Promotion which recommends that the medical representatives should have an appropriate educational background and be trained with necessary medical and technical knowledge and integrity to present information on drugs in an accurate, unbiased, and responsible manner [6].

Drug advertisements and promotional literature

Promotional literature is another key technique employed by the pharmaceutical industry for drug promotion that encompasses both the print and electronic (TV, Internet) advertisements. Initially promotional literature and drug advertisements were targeted at health care professionals only because, unlike other products, here the consumer (patient) is not the one who chooses the product (drug). Even today, the majority of drug advertisements are focused mainly on clinicians but there is the gradually increasing trend of direct-to-consumer (DTC) advertisements. The US Food and Drug Administration received three times as many non-Internet submissions for promotional approval directed towards healthcare professionals over customers (Figure 2) [7].



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
DTC Non-Internet	6870	5796	6057	7905	9292	10900	12624	14456	15993	15920	17584	16432	18518	15186
Professional Non-Internet	25403	27342	28350	34160	39156	43588	47071	45712	45662	45546	45221	41749	44870	39983

Figure 2

Trend of submissions to US Food and Drug Administration (FDA) for non-Internet promotion; direct-to-consumer *vs.* Professionals (2001–2014) [7]

Even with the advent of DTC advertisements, promotion to professionals still occupy the lion's share of this segment. Much of the promotional literature is presented by the medical representatives during their physician's visit and by virtue of the lack of scientific credibility of the data depicted in the literature or due to the commercial nature of the representative's visit, the practice of drug promotion through literature often loses its significance as an effective method of disseminating latest drug information.

The DTC promotion has been, and remains, a debatable topic with arguments both for and against it. Although there is one school of thought that it encourages consumer autonomy, the counter argument raised is that demand by patients is the most common reason offered by physicians for inappropriate prescribing. Moreover, it leads to increased workload for the physicians as they spend their consulting time interpreting and explaining the DTC advertisements to the consumers (Table 1) [8].

Industry incentives and sponsorship of continuing medical education programmes

Although doctors are often referred to as the epitome of professionalism and flagbearers of work ethics, it is an undeniable fact that the offer of *free lunch* and token gifts and incentives from the industry creates a moral dilemma in at least some clinicians. The acceptance of lunch invitations and gifts from the industry has the potential to create a feeling of reciprocity and repay the gesture with support in the form of drug prescriptions. The attitude of medical professionals to accepting gifts often takes a hypocritical nature as demonstrated in one study that found 85% of medical students believed its improper for politicians to accept gifts while only 46% of them found it improper for themselves to accept gifts of the same value from a pharmaceutical company [9].

Table 1

Direct-to-consumer (DTC) advertisements: favouring and opposing arguments [8]

In favour of DTC advertisements	Opposing DTC advertisements
Informs, educates and informs patients	Misinforms patients
Encourages patient to contact clinician	Overemphasizes drug benefits
Promotes patient with dialogue with health care providers	Promotes new drugs before the safety profile is fully known
Strengthens patients' relationship with clinician	Manufactures disease and encourages drug overutilization
Encourages patient compliance	Leads to inappropriate prescribing
Reduces underdiagnosis and undertreatment of conditions	Strains relationship with healthcare providers
Removes stigma associated with certain diseases	Wastes appointment time
Encourages product competition and lower prices	Increases costs

A review of 29 studies that involved quantitative analysis concluded that drug company sponsored continuing medical education (CME) programmes preferentially highlighted the sponsor's drugs compared to other programmes. Attending talks of industry speakers at sponsored CMEs, accepting incentives, travel and lodging funds from industry was also associated with nonrational prescribing [9]. All forms of promotion methods induce changes in physician prescribing behaviour as evident from the meta-analysis of six studies that demonstrated increased number of prescriptions and increased prescribing costs due to promotional activities (Figure 3) [10].

In a 2010 study, it was reported that a majority (55%) of the patient population believed their personal physician accepted gifts from the pharmaceutical industry and a smaller proportion believed all doctors as accepting industry gifts and incentives. This led to distrust towards both the treating physicians and the health care system as a whole [11].

As seen in several studies, the fact that the technique of providing gifts and incentives and sponsorship of medical events, such as CMEs, influence prescription patterns is more or less established. The assumption that all doctors who attend industry sponsored CMEs are inclined or obliged to promote the sponsors drugs may not entirely be true as seen in one survey in the USA that showed that 81% of responding physicians attended the CMEs as part of the state-licensure agreements [12]. Although much of this promotion is targeted towards practicing clinicians, in many cases, the exposure to type of promotion begins even at the level of undergraduate education at medical colleges in the form of sponsorship of conferences and student seminars and other scientific proceedings at the colleges. In a 2014 study in Pakistan, among 300 respondents in a cross-sectional survey, 81% favoured the industry sponsorship of student events and seminars and over 30% were comfortable receiving gifts from drug companies.

Medico marketing/medical affairs

Medico marketing is an umbrella term referring to the activities of the medical affairs division of the pharmaceutical company. Although not strictly labelled as involved in the promotion of drugs, medical affairs employs physicians to bring about a scientific rigour to the promotional activities and to keep in check that these promotional methods adhere to the scientific and ethical guidelines. Medical affairs act as the bridge between the clinicians and the drug company by providing peer-to-peer relationship and building up on the scientific, informational and interpersonal activities.

Among various roles played by the medical affairs person, one key component is the support of the marketing division of the company through various methods (Table 2) [13].

The medical affairs personnel known as medical advisors or sometimes as medical scientific liaison thus has several roles to play in the industry. The preparation and review of drug promotional literature to ensure that the literature complies with all regulatory guidelines and follows scientifically validated data is a key function of this division. Sales force training by imparting them with the valid and essential medical and scientific information on the drugs they will be promoting, the conduct of events for disseminating drug

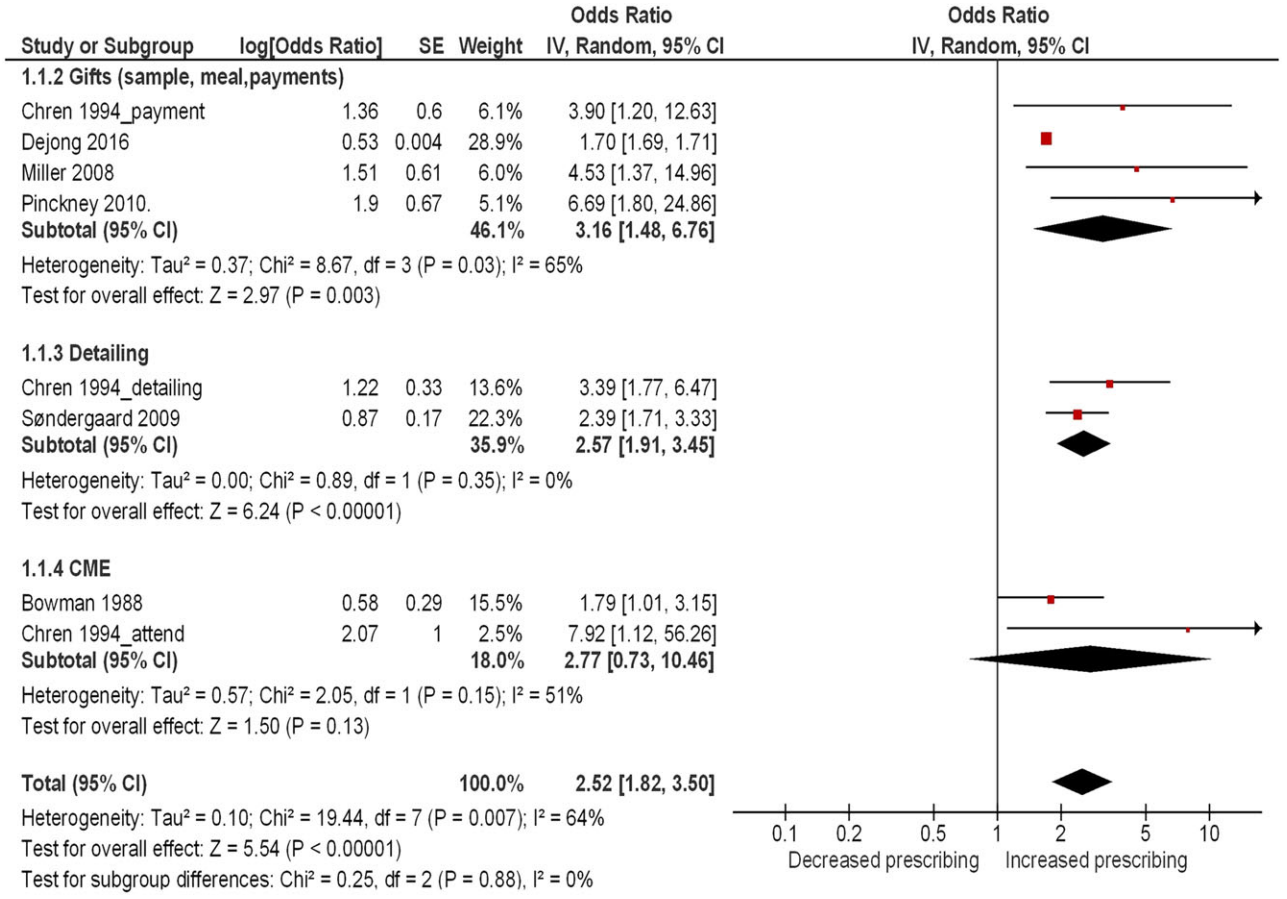


Figure 3

Forest plot for changes in physician prescribing behaviour stratified by type of exposure [10]. OR, odds ratio; df, degrees of freedom; CI, confidence interval; IV, instrumental variable

Table 2

Role of medical affairs in marketing function [13]

• **Preparation and review of drug promotional literature**
• **Training of medical representatives**
• **Drug related and therapy area related query resolution**
• **Planning, organizing and conducting continuing medical education programmes for information dissemination**
• **Building and maintaining key opinion leader relations**

information and updating the clinicians of the latest data from the drug company trials and approvals and the task of building and maintaining KOL relations.

KOLs or thought leaders are those clinicians who are considered experts in their respective fields by their peers by virtue of their subject expertise, experience, research, publications, speaking and overall influence. KOL management is an essential component, as physicians often get the help from fellow leading physicians for information on latest drugs [14]. The role of the KOL in promotional activities has always been a controversial topic. The industry wants to associate themselves with the top influential voices in their respective fields to ensure that they have the support of these subject experts on their side and at the same time the industry wants to update these doctors on the latest perspectives from the company. The opposing voice in the KOL debate raises the concern of the conflict of interest among these KOLs where they speak on selective topics alone to signify the benefit of the drug and suppress or hide the demerits of the product by accepting remuneration from the drug companies [15].

This raises an ethical dilemma as to what to believe in a scientific session sponsored by a drug company and employing KOLs to speak on their behalf for a fee. This prospect is enticing for many clinicians as the fee demanded can be quite hefty with nearly 3000 US dollars charged by a KOL for a single lecture in a scientific session. The figures speak for themselves with nearly 15–25% of big pharma marketing budgets being spent on paying KOLs [16].

Industry sponsored clinical trials

Clinical trials are now the time-tested approach to establish the efficacy and safety of an investigational drug through which data are generated and made available for drug approval. This scientific exercise requires a long period of time spread across years beginning from discovery of drug targets, molecule selection, and various clinical trial phases. Apart

from time, this endeavour requires a great deal of manpower and, most importantly, money. There is no argument when it comes to the fact that the pharmaceutical industry has all the necessary resources of money, manpower and material to initiate and see the clinical trial to its completion.

In an analysis of 119 679 trials conducted from 2006–2013, there were three times more industry-sponsored trials than non–industry-sponsored ones in high-income countries, with 30% of industry-sponsored trials conducted internationally compared with only 3% of non–industry-sponsored trials [17]. Thus, there is no shortage of information to indicate that the conduct of global clinical trials will be hampered in the absence of pharmaceutical industry sponsorship.

The question of conflict of interest arises when the company set to derive revenue from the approval of the drug itself sponsors the drug trial and more importantly influences the operations, data analysis and eventual publication of the data. A systematic review of 30 studies found that industry-sponsored trials were more likely to have outcomes favouring the sponsor than non–industry-sponsored trials (odds ratio 4.05, 95% confidence interval 2.98–5.51) with reasons for such results being selection of inappropriate comparator to study drug and publication bias as sponsored trials with negative results were less likely to be published [18]. Another review of 58 published drug trials found similar conclusions that sponsored trials were more likely to favour the sponsor's product than independent trials and that association could not be explained by any difference in the methodological quality of the trials [19]. One key area where the subtle modifications are made to produce results favouring the sponsor's product is in the publication phase where selective reporting is done, such as in the case of Study 329 of paroxetine in adolescent depression where there was marked changes in the outcomes mentioned in the published study and the study protocol with selective reporting of beneficial outcomes and under-reporting of adverse outcomes. The article concludes that flaws in industry-funded research can be severe and difficult to detect [20].

Unethical promotional practices

Drug promotion is an inevitable part of the drug life-cycle and promotional methods mentioned so far that fall within the ethical and regulatory limits and serve the intended purpose of both generating revenue for the drug companies and dissemination of updated knowledge on the drugs. Apart from these, drug companies engage in rather questionable tactics to push their drugs in the market.

Shaping of medical opinion

Often drug companies engage in depicting doubtful or functional disorders as medical conditions that needs pharmacological treatment. One such strategy was followed by Glaxo SmithKline in the marketing of its drug Lortonex (alosetron) to create the perception of irritable bowel syndrome as a common and serious medical condition.

In 1997, Roche published advertisements and other promotional literature promoting the use of Aurorix (moclobemide) for treating so-called *social phobia* where a state of shyness was depicted as psychiatric disorder to create a market for the drug. Several years later, Roche admitted that the prevalence of social phobia was depicted in exaggerated figures in their promotional literature [21].

Data manipulation

The terminology refers to the fact that if enough manipulation is made with the study data, then the results can be modified to come in favour of the investigator's interest. One such type of data manipulation is *opportunistic type* where, by doing multiple comparisons, the investigator can find significant differences where actually none exist.

For example: for two tests, the probability that finding a difference between the two reflects true difference will be 0.95×0.95 (90%) whereas for 20 tests it will be 0.95^{20} (36%).

Procrustean data manipulation involves manipulating the data to prove the desired hypothesis and is done by selective reporting of study data. It is a highly challenging task to pick up data manipulation and one of the methods to detect, is by the journals, where the editorial board can ask the investigator for detailed information regarding the data analysis methods [22].

Another critical point in clinical trials is the selection of endpoint for trials especially for oncology trials. Statistically significant difference in treatment and control arms may be picked up when several endpoints are assessed. The more important issue of clinical relevance of the endpoints selected are often overlooked. In oncology trials, endpoints such as overall survival and progression-free survival are more clinically relevant than other parameters such as reduction in tumour size or change in invalidated biomarkers, but not all trials include these relevant endpoints for assessment.

Ghost management

Another instance of dubious promotional strategy is the practice of researching and writing medical journal articles by a drug company and then getting it published under the name of academics who played little or no role in the research and writing process, to render the article with false credibility and transparency. This method of *ghost writing* has been brought to light by several reports that surfaced from the scrutiny of various publications of industry sponsored trials. *Ghost management* refers to the entire process of pharma companies controlling or shaping various steps in research, analysis, writing and final publication of the articles.

Several reports have established that industry sponsored trials tend to produce results that favour the sponsor; ghost management amplifies this bias because the same sponsor when they exert their influence at multiple stages of analysis, writing and publication will shape the final article, which then shapes the medical opinion and practice and eventually patient care itself.

A lawsuit concerning 85 published articles on Pfizer's sertraline was a key turning point that revealed the shady world of ghost management. The subsequent scrutiny of the articles revealed that in 1998–2000, 18–40% of published articles on sertraline were ghost managed by Pfizer through a single third party – a medical education and communications company called Current Medical Directions. Other than the fact

that ghost management is rather difficult to detect in the first place, limiting this practice is an even more daunting task as checkpoints such as peer-review process and disclosure of conflict of interest have not kept the ghost management practice under control. One suggestion to curb this practice is to prohibit academicians on accepting authorship of such articles and penalizing with disciplinary action against those who do so [23].

Off-label promotion

The off-label use of prescription drugs opens up a huge prospect for the drug companies to generate significant revenue. The off-label use refers to the prescription of drugs for nonapproved indications backed only by medical opinions and not by proper scientific data. A 2003 report showed that off-label use accounted for 21% of all prescriptions of the top three drugs in the leading 15 drug classes with highest prevalence of off-label use among antipsychotic drugs (Figure 4) [25]. Most of the off-label drug uses (73%) had little or no scientific support. Off-label use, while reaping profits for the company, has multiple negative effects such as: [24]

- Brings down the expectation of the consumer that the drug safety and efficacy has been fully evaluated
- Increases health care costs when newer expensive drugs are used off-label
- Undermines the need for the drug company to perform rigorous studies to prove drug safety and efficacy
- Discourages evidence-based clinical practice

Regulations for drug promotional practices

With its massive clout of money, manpower and resources, the pharma industry is one of the top ranking global industries and in the absence of checks and balances, the industry practices of revenue generation can veer into the borders of business ethics and often illegal practices. There is no deficit of regulatory bodies and their associated regulatory guidelines for marketing practices anywhere, which includes both governmental agencies and industry trade for laying down an ethical framework of promotion methods. The WHO, Association of the British Pharmaceutical Industry (ABPI), Pharmaceutical Research and Manufacturers of America (PhRMA), Organization of Pharmaceutical Producers of India (OPPI) and Uniform Code of Pharmaceutical Marketing Practices (UCPMP) set by the Government of India are some of the various regulatory bodies and regulatory guidelines that exist to check the industry promotion practices.

The WHO review on drug promotion concludes that not all methods followed by regulatory bodies are effective in controlling drug promotion practices within ethical standards (Table 3) [3].

The UCPMP lays down the guidelines to be followed by drug companies for drug promotion in India. The 13-point document lists various methods of drug promotion and explains the rules to be adhered to by the companies. The OPPI is an industry trade group that provides guidelines for best industry practices in drug promotion with disciplinary action and penalization mentioned for noncompliant member organizations. The ABPI Code of Practice is the body that defines the guidelines for the marketing practices of the British pharmaceutical industry. It covers all aspects of drug promotion from promotional literature to physician–industry interactions and guidelines for industry incentives and sponsorships of CMEs and other scientific sessions. Similar to regulating the industry practices in drug promotion, the physicians are regulated by ethical guidelines to be followed when interacting with industry. In India, these guidelines are made by the Medical Council of India. The Physician Payments Sunshine Act is a 2010 US healthcare act that was formulated to increase the transparency of financial relationships between healthcare providers and

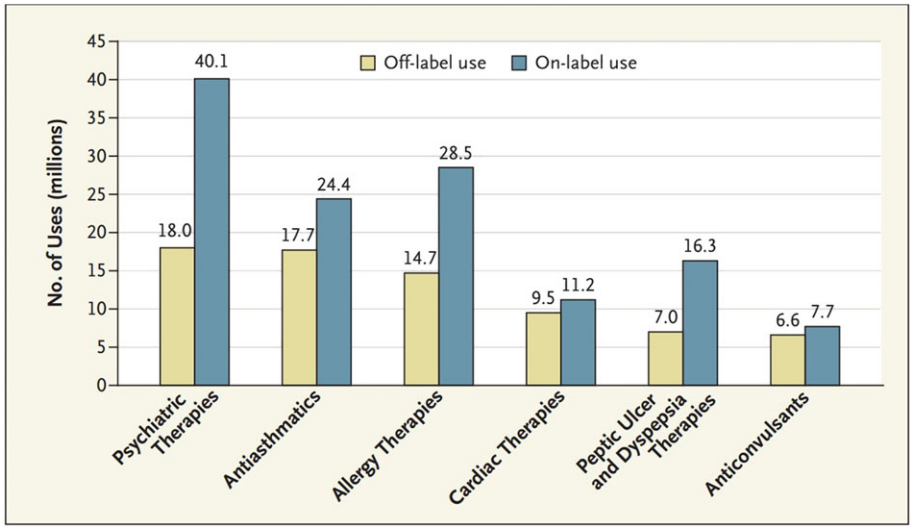


Figure 4
Estimated number of prescriptions for on-label and off-label uses of medications in various functional classes, 2001 [24]

Table 3

Effective and ineffective methods at limiting drug promotion [3]

Effective	Ineffective
• **Government regulations**	• Industry self-regulation
• **Educating doctors about drug promotion influences attitude and improves skills**	• Review by journal editors
• **Publicizing deceptive information leads to improvements**	• Guidelines for sales representatives or advertisements • Government control of postmarketing surveillance

pharmaceutical manufacturers. All the industry–physician financial transactions will be recorded and data sent to Centres for Medicare and Medicaid Services [26].

Advertising and pharmaceutical lobbying

Advertising and creating public opinion of a product is a powerful impetus to drive sales of the product. Advertising campaigns when done properly act as a psychological tool despite the lack of backing of good facts or science similar to advertising campaign of cigarettes by Edward Bernays in the late 1920s. As observed by Marcia Angell, it is the *me-too* drugs that need promotion rather than drugs that truly demonstrate efficacy. The promotion of *me-too* drugs is another questionable industry practice where pharma companies engage in competitive marketing to create a market space for drugs of similar class action that demonstrates very little or negligible difference in efficacy or safety [27]. Contrary to the perception created by the drug companies that the profit from drug sales is mainly channelled to research and development of new molecules, a significant share of this profit finds its way into the practice of pharmaceutical lobbying. Industry trade groups regularly practice lobbying to gain the upper hand in clearing the various drug regulations and approval processes.

Pharmaceutical fraud

This involves activities that result in false claims to healthcare programmes such as Medicare in the USA or other similar state programmes for financial gains to a pharmaceutical company. The various ways in which the pharma companies defraud the government include good manufacturing practices violations, off-label promotion, best price fraud, CME fraud, Medicaid price reporting and manufactured compound drugs. In the USA, a Federal law termed as the False Claims Act or Lincoln Law imposes liabilities on persons and companies that defraud the government. The Law also has a provision of allowing people unrelated to the government called *relators* or *whistle-blowers* (when relator was or is an employee of the organization accused in the suit) to file action on behalf of the government. The US government recovered nearly $39 billion under the False Claims Act between 1987 and 2013 and 70% of this amount was initiated by action filed by relators. In the past 13 years, all major pharmaceutical settlements have been made possible under this Act, which exposed the industry practices of off-label promotion and offering undisclosed payments to doctors. The magnitude of the fraud by the pharma industry is evident from the fact that of the total revenue recovered under the False Claims Act, nearly 50% has been from pharmaceutical settlements with Glaxo SmithKline's $3 billion settlement in 2012, being the largest healthcare settlement in history [28, 29].

Summary and future directions

Drug promotion is an essential and indispensable part of the pharmaceutical industry where each drug company invests a lot of money and resources in the view of generating revenue. By simultaneously creating profits for the manufacturer and playing the role of an information dissemination tool, drug promotion, when done within ethical boundaries is an effective method at achieving all the aforementioned objectives. The dilemma arises when this tool is modified for creating unilateral benefits and profit takes an upper hand over patient care. It is known that the pharmaceutical industry has been one of the most important players in improving the global healthcare landscape and this has been made possible by the huge revenue generated by drug sales.

The path ahead lies in taking the middle ground of supporting industry promotion but ensuring that the practices strictly adhere to the numerous guidelines laid down by the government bodies and industry trade groups. Bringing in more transparency and accountability into all aspects of physician–industry relations will be a strong step towards ensuring drug promotion practices fall within the guidelines of medical and business ethics. Until then, the conduct of dubious promotion methods by the industry will only worsen the public image of the pharmaceutical sector and severely impair the venerable trust that is essential between the patient and the physician.

Competing Interests

There are no competing interests to declare.

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